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WOMAN SUFFRAGE TRACTS—NO. 1.

WOMAN AS INVENTOR,

BY

MRS. M. E. JOSLYN GAGE.

ISSUED UNDER THE AUSPICES

OF THE

NEW YORK STATE

WOMAN SUFFRAGE ASSOCIATION.

F. A. DARLING, STEAM BOOK AND JOB PRINTER, FAYETTEVILLE, N. Y.

1870.

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WOMAN AS INVENTOR.

THE COTTON GIN.

It may, perhaps, be unknown to many persons, that the invention of the cotton-gin, one of the greatest mechanical triumphs of modern times, is due to a woman. Although the work on the model was done by the hands of Eli Whitney, yet Mrs. Greene originated the idea, and knowing Whitney to be a practical mechanic, she suggested his doing the work. This was during the winter of 1792–3, when he was a guest at her house, near Savannah.

Mrs. Greene, whose maiden name was Catharine Littlefield, was the widow of Gen. Greene, of Revolutionary memory. After the return of peace Gen. Greene moved with his family from Rhode Island to Mulberry Grove, on the Savannah river, where he soon died, leaving his estate much embarrassed and five children for his wife to educate. Shortly after this, Eli Whitney went south to teach in a private family. When he reached Georgia he found his place supplied, and thereupon decided to apply himself to the study of law, making Mrs. Greene's house his home.

The great difficulty of separating cotton from the seed was at that time a staple subject of complaint among cotton-planters. To separate a pound of the black seed variety, to which the lint does not adhere even so closely as to the green, was a negro's task for a day. So slow was the process that it became the regular practice for all the family of a cotton-planter to engage every night in the laborious work; and the task was looked upon as so great that it was the ordinary topic of conversation among those who cultivated cotton, and a fortune was prophesied for the lucky inventor of a machine capable of doing the work.

It was after a conversation of this character, which had been held by some guests in her house, that Mrs. Greene proposed to Whitney the making of such a machine, and upon her idea he commenced.

The work was done in her house, and under her immediate supervision. The wooden teeth first tried did not do the work well, and Whitney, despairing, was about to throw the work aside, when Mrs. Greene, whose confidence in ultimate success never wavered, proposed the substitution of wire. Whitney thereupon replaced the wooden by wire teeth, and within ten days from the first conception of Mrs. Greene's idea a small model was completed.

This primitive little model was of such perfect construction that it has ever since stood as the model of all cotton-gins, and the inventive genius of universal male Yankeedom has not yet been able to suggest any practical improvement in the machine. Mrs. Greene, through her second husband, Mr. Miller, became the partner of Whitney in the manufacture of gins.

By means of this invention an extraordinary impetus was given to the culture of cotton. Instead of a pound a day, as was formerly cleaned by hand, three hundred pounds were cleaned by the gin, and in a much better manner than hand-work could do. The importance of the invention can hardly be over-estimated. Every cotton-mill throughout the world that whirrs its machinery in drawing out threads, or whose shuttles fly back and forth in the manufacture of cloth, is indebted to Mrs. Greene for its activity. Every sewing-machine used in shop or private house plies its treadle more rapidly on account of Mrs. Greene's genius. The cry, "Cotton is king," could never have arisen had not the gin, with its myriad man-power, first come into existence.

The importance of the invention was well described in the charge of Judge Johnson, of Savannah, in a suit brought to sustain the validity of the patent. He says:—

"The green seed is a species much more productive than the black, and by nature adapted to a much greater variety of climate. But by reason of the strong adherence of the fibre to the seed, without the aid of some more powerful machinery for separating it than any formerly known among us, the cultivation of it would never have been made an object. The machine, of which Mr. Whitney CLAIMS the invention, so facilitates the preparation of this species for use, that the cultivation of it has suddenly become an object of infinitely greater national importance than that of the other species ever can be. With regard to the utility of this discovery the whole interior of the Southern States was languishing, and its inhabitants emigrating for want of some object to engage their attention and employ their industry, when the invention of this machine at once opened views to them that set the whole country in active motion. From childhood to age it has presented to us a lucrative employment. Individuals who were depressed with poverty and sunk in idleness have suddenly risen to wealth and respectability. Our debts have been paid off, our capitals have increased, and our lands trebled themselves in value. We cannot express the weight of the obligation which the country owes to this invention," etc., etc.

There is scarcely a manufacture or a branch of the government that has not been benefited by this invention. Every particle of revenue the government receives from cotton has been ten thousand times enhanced by the inventive genius of this woman. Every cotton lord, north or south, rolls in his wealth from the inventive genius of a woman; and, as has been said, even "the Patent Office itself finds a prolific source of revenue from it, both as a whole machine and in its parts." Let every woman who hereafter enters that building examine well the original model of the cotton-gin there deposited, and when she looks at it remember it was the invention of a woman.

It may be asked why Mrs. Greene did not take out the patent in her own name. To have done so would have exposed her to the contumely and ridicule of her friends. Custom, that unwritten law, has for years frowned upon any attempt of woman to take such a step. If she has been gifted with an inventive genius, she has either stifled its exercise, expended it upon style of dress—that being deemed her legitimate province—or, like Mrs. Greene, suffered some man to claim the award her due. She shrunk from the persecution that would have attended her claiming the patent, while by associating herself with Whitney as his partner in the manufacture of the machines, she hoped at least to share in the pecuniary advantages of the invention.

Women have not dared to exercise their faculties except in certain directions, unless in a covert manner. A knowledge of mechanics has been deemed unwomanly, and yet I have known women whose natural tastes led them to be interested in everything pertaining to this science.

I once had a lady friend, who, to use her own words, "had a perfect passion for engineering," and who if she "had been a man, would have been an engineer."

But she was a woman. She had been taught from her earliest childhood that to make use of this talent with which God had endowed her, would be an outrage against society; so she lived for a few years, going through the routine of breakfast and dinners, journeys and parties, that society demanded of her, and at last sank into her grave, after having been of little use either to the world or herself.

What a benefit she might have been to her sex had she dared to exercise her powers. Her example would have opened the way for hundreds more to find health and wages and freedom in some congenial occupation outside of the prescribed limits.

So of Mrs. Greene. Had the patent of the cotton-gin been taken in her own name, either singly or in union with Whitney, what a wide-spread benefit her example would have been to others of her sex. It would have encouraged inventive genius among women; it would have induced many to claim as their own right, patents that have gone out to the world accredited to man; it would have encouraged industry, opened new avocations to both women and men; and the world would to-day have been so much wiser and better, as it ever is after even one humble individual has dared to do right.

All progress in the arts, in science, in wisdom, is the result of successive steps; and it is impossible to foresee the consequences which may arise from the omission or the commission of an act by even the most obscure person.

Mrs. Greene does not stand alone as a female inventor of great genius, even within the limits of the present century.

SILK, GAUZE, STRAW BRAIDING, ETC., ETC.

While this article was in course of preparation, the Report to the Department of State on Silk and Silk Manufactures, made by the United States Commissioner to the Paris Exposition was brought into my house. I was glad to find that justice to the inventive genius of woman had been done in that report by giving her the meed of notice her due as the inventor of silk, but there are points not mentioned by Mr. Godwin upon which I wish to touch.

In the theory of political economy propounded by a Frenchman a few years ago, he maintained that only those who brought into use the properties of nature contained in the animal, vegetable and mineral kingdoms, should be considered as the increasers of wealth in the community. The mere salesmen or hands through which these useful commodities passed, he called non-producers.

It is easy for us to see that the community which, under enlightened direction, by means of labor-saving machinery like the cotton-gin, or by a method of making some heretofore valueless product into a widely useful material, as silk, has within itself an element of success which, if pursued, cannot fail to give it a high place among nations, and by its wide-spread diffusion into other countries have great influence in elevating the whole world.

Since the invention of silken fabrics by the Chinese Empress, Si-ling-chi, between three and four thousand years ago, silk has stood next to rice in causing the unparalleled prosperity of China—a country which has no public debt, and which supports a surprisingly numerous population. Even at the present time, silk furnishes material for more than half the clothing of that great empire, where cotton was unknown till within about eight hundred years, and where, had it not been for the fortunate invention of the former, poverty and suffering would long since have blotted the nation from existence.

After the introduction of silk to the notice of the Europeans, during the reign of Alexander the Great, it formed a great article of commerce between China and many European nations, and caravans laden with the fabric were accompanied by armed escorts.

Aristotle is one of the first European writers to mention it. It was then called Ser, from the portion of China where it originated, and from whence Pliny says, the Roman ladies received their "vestes serica." Not long after Ser was introduced into Europe, it was, Penelope like, unwoven by Pamphila, a woman of the island of Cos, and re-manufactured by her into a transparent fabric known to the Roman ladies as "coa vestes," and to moderns as coan. Here we have the invention of silk gauze. Coan and decca, one of silk and the other of cotton, were the two most diaphanous fabrics manufactured by ancient nations, and so fine and transparent were they that each in turn was known as "the woven wind." Yet as transparent as was coan, it was firm enough to take beautiful colors and to be adorned with embroidery and threads of gold.

So sensible were the Chinese of the benefit accruing to their empire by the invention of silk that the Si-ling-chi was deified by the name of Sien Tshan, or first promoter of silk industry, and the later Empress's sacrifice to her memory. As the Emperor annually holds the plow, by his example to dignify labor and promote the cultivation of the soil, upon one of the products by which (rice) the prosperity of his empire so much depends, so for the same cause does the Empress annually visit the broods of silk-worms, and by her personal interest and inspection, encourage industry, and promote attention to that other staple, upon which, almost equally with rice, the stability of the empire rests.

Not only has China been so materially benefitted by the invention of silk, but within the last few hundred years, Italy, France, Spain, England and other nations have derived an immense revenue from its manufacture. More than thirty years ago, the estimated yearly profit of France upon silk, was more than $7,000,000, and in Mr. Codwin's report the value of the raw material now produced in that country is estimated at $25,600,000. The revenue of a country is the life-blood which circulates through its whole machinery during both peace and war, and enables it to execute vast works of national improvement, to encourage industry, to promote the arts, to maintain an educational fund, and in various ways contribute to the prosperity of the people.

Our country, with its large boundary, varied climate, immense water power, and uncounted mineral wealth, will soon stand foremost in the world as a manufacturing country.

We learn from the report on the eighth census, that the products of manufacture between 1850 and 1860 increased at the rate of eighty-six per cent., or about double to the increase in the productions of agriculture. Still, in a very great measure one is dependant upon the other, and especially does the increase of agricultural products depend upon mechanical inventions. The increase of population itself, does not exert equal influence on the cultivation of the soil with a new and important invention, although Gibbon says the Romans affirmed that with the improvement of arts, the human species was visibly multiplied.

The straw business of this country is a rapidly increasing one. This fact cannot fail to impress itself upon the mind of every person who notices the varied styles of hats both for men and women, the frequent changes and the almost universality with which, in some form, they are worn. The first straw bonnet manufactured in the United States was braided in 1798 by Miss Betsy Metcalf, of Providence, R. I. The imported Dunstables, at that time the chief wear, were costly; Miss Metcalf saw one in a store in Providence, and carrying the pattern home in her eye, sat down to produce a similar one. This was the first step towards a great branch of industry which increased so rapidly that in 1810, only twelve years after Miss Metcalf made her bonnet, the estimated value of straw bonnets manufactured in Massachusetts alone was $551,988, or over half a million of dollars added to the wealth of one State alone by the genius of woman. Massachusetts now employs ten thousand (10,000) persons in the business, and produces six million (6,000,000). hats and bonnets annually. A great deal of straw braid is also manufactured in Pennsylvania. Philadelphia alone has a business in it estimated at $600,000, or $350,000 for hats and $250,000 for bonnets. A fac-simile of the original bonnet made by Mrs. Baker "nee" Metcalf, is preserved in the collection of the Rhode Island Society for the Encouragement of Domestic Industry.

A hat made from the long leaves of the Southern pine was exhibited at the fair of the American Institute, in 1850, by a Miss Hudson, of Long Island, and received high commendation from the Institute from its capability of being made another valuable branch of domestic manufacture.

In the language of another, "the social and political relations of man are mainly formed and controlled through the influence of industry applied to the production of material wealth. * * * The degree of influence exerted by a particular product can only be appreciated by a consideration of all its relations, including a knowledge of a dependence upon each other of the different branches of industry and production."

In this present article I have endeavored to show the bearing the manufacture of silk has had upon the permanence of one magnificent empire, and the influence it exerts upon the material prosperity of many others. In my previous article I spoke of the immense benefit to the manufacturing interests of the country the cotton-gin has proved, increasing not only the wealth of individuals, but the revenue of the country many hundred fold. The recent repeal of the tax on raw material has taken from the revenue eighty millions of dollars annually. There is scarcely a child that needs to be taught the great influence cotton has had, not only on the social, but on the political status of our country.

These two inventions by women of silk and the cotton-gin, have done much to build up the State, to define social and political position and to further the interests of mankind, and no brain is so prophetic, no eye so far-seeing, as yet to discern when their influence shall cease.

LACE, WOOD-ENGRAVING.

The invention of pillow lace by Barbara Uttman, of Annabery, Saxony, was one of those occurrences in which we clearly see the providence of God, for about that period the mines, in which most of the peasantry worked, became less productive than formerly, and veils, embroidered after the Italian method, the making of which was followed by the families of the miners, were also in less demand. A large part of the population thus simultaneously thrown out of employment, were on the verge of great misery when Barbara Uttman invented lace, and taught her necessitous country-women the art of making it. A desire for the work spread with great rapidity, and its manufacture soon gave competence to thousands of persons who, without its invention at that period, must have suffered greatly, and perhaps died of starvation.

Nor was the worth of the invention confined to a limited extent of country or of short duration, for the art of making it was in time carried from country to country, and various European states are at this day deriving a great revenue from its manufacture. In France alone, two hundred thousand women are employed upon it, and the varieties made are numerous and valuable. Valenciennes (real), Chantilly, Lisle, Alençon blond and Alencon point, are all pillow laces, and all made in France.

Many cities are famous alone from the manufacture of some particular variety of lace. Caen and Bayeux excel in certain kinds of silk laces, as veils, scarfs, mantles, robes and shawls. Chantilly, so fashionable and so expensive the present season, is made at a place of that name peculiar for its elaborate and costly varieties of silk lace. Elegant designs for very light and open flax thread are found at Mirecourt; while Alencon is celebrated the world over for its costly point laces, the manufacture of which is confined to a few families, and is with them hereditary. The thread itself is of very costly fineness, and when wrought by the needle in points, its value is enormous, and no other art is said to be capable of bringing about such an extraordinary increase of value from a material worth so little as is flax in an unwrought state.

In England the making of pillow lace was introduced nearly two hundred and fifty years ago, and in the year 1800, one hundred and thirty thousand women and girls, a population more than twice as great as the whole city of New York contained at that time, earned a livelihood by its manufacture in the two counties of Buckingham and Bedford alone, although machine-made lace, from its greater cheapness, had begun to be a formidable competitor. No machine-made lace yet introduced has been able to do fine work that will bear the test of washing as hand-made lace does. However well it may look when first out of the machine it loses its beauty upon the application of water, and for this reason hand-made lace, though much more costly at first, is cheaper in the end for all purposes, where used solely as trimming. It can be worn and look well, as long as it can be mended so as to keep together, which is not the case with machine-made lace. In olden time its use gave rise to lace menders and lace washers, who formed a somewhat numerous and important class of work-women.

Honiton lace is manufactured in England, and gives employment to seven or eight thousand girls in the northeastern part of Devonshire. At the time of Victoria's marriage, this manufacture was in a depressed condition, but the queen gave it a new impetus, by ordering her wedding dress of the Honiton lace workers, and thus bringing it again into fashion. At our Crystal palace exhibition of the industry of all nations, I remember seeing exhibited a single flounce of Honiton lace, which was valued at three thousand dollars.

Many of the Irish peasantry are engaged in the manufacture of Limerick lace. A number of the firms in the vicinity of that city are in the lace trade, which has there proved of immense importance, as many as six hundred girls being employed by one establishment. Mechlin and Brussels laces, in former times, descended as heir looms from mothers to daughters, and were manufactured from the finest thread that could possibly be made.

Addelina Patti's dress at her marriage a few months since, was trimmed with Brussels lace. Of jewels, though a profusion were showered upon her, she wore none. Fine lace for adornment ranks with jewels, and for a bride is infinitely more suitable. Brussels, like diamonds, can be called the product of darksome mines, for not only is the flax from which it is made, grown only in particular localities, but the spinning of the thread is done in damp cellars, from which all light is excluded, but a single ray that is allowed to fall upon the work, and the delicate fineness, the elegance and variety of design of the best Brussels lace, makes its possession prized by even the queen upon her throne. Neither is it for the dress of woman alone, that lace is used, but courtiers and kings, priests and pope, alike guard as a priceless treasure, and proudly bedeck themselves with this invention of woman's brain.

That the invention of this exquisitely beautiful art did not militate against Barbara Uttman's usefulness to herself or mankind as a wife and mother, is proven by the number of her descendants; of whom she saw sixty-four children and grand-children before her death, which took place at the comparatively early age of sixty years.

Neither was Barbara Uttman a poor woman, whom necessity drove to invention, but she was the mistress of the castle with servants to obey every command. She was alike a woman of genius, of wealth, and of humility of heart, for it is said of her that after perfecting her invention, she devoted the remainder of her life, without ostentation or reward, to teaching the art to the peasantry about her, and left it as a legacy of ever increasing value to her country and the world.

Her memory is still revered about Annabery, and her monument records her praise. Barbara Uttman, over three hundred years ago, learned the lesson so many women of the present have failed to learn, i. e., all the worth of life is, to be useful to ourselves or to those about us. She had not to fly to the gaming-table or to the wine-cup to drive ennui from her. Time to her had not only a present, but a future worth, and millions unborn at her death have lived to bless her memory, and millions more will yet reverence her name.

The earliest steps in many inventions are buried in the mists of past ages, and even steam, printing, rifled guns, and telegraphing, are found in their rudimentary states among old nations, and are claimed as their own by different men of different countries in modern times. The piano is scarcely one hundred years old, and yet there is no certainty as to who was its inventor. Germans, French, English, all claim it, and no one has been able truly to decide what person or what country should receive the credit of its invention.

Neither the telescope nor the microscope, though supposed to be modern in their origin, can be definitely traced to a particular person or epoch, and we cannot, therefore, feel surprised that the invention of engraving, an art that does so much to beautify our homes, and that teaches so much that mere print cannot, has been the subject of great controversy, and is claimed by many different persons and countries. But the weight of testimony as to its invention, seems to point to the Cunio children, Alexander and Isabella, twin brother and sister, but sixteen years of age, who lived in Ravenna, Italy, in the thirteenth century, and who together prepared a series of eight pictures, representing the actions of Alexander the Great.

They were executed in relief on blocks of wood, made even, and polished by Isabella Cunio. The remainder of the work was continued and finished together by the brother and sister. It is thought they must have printed the engraving by placing the paper upon the block and pressing their hands upon it.

From this first step to the new one called cromo-lithography, the gradation has been easy. All the world were enabled to make an egg stand upon end after Columbus had shown the way.

Let us once fancy what the world would be if still without this invention—no pictures in our books, no engravings on your walls. Instructive works of art like Audubon's Ornithology would not be in existence. Agassiz' extinct monsters could not have been reclothed in flesh to our eyes, nor could Mrs. Agassiz' paintings of the multitudinous variety of fishes in the Amazon have been infinitely reproduced for the instruction of mankind. Magnificent Thebes, the oldest and the grandest city of the world, with its immense temples, its solemn sphinx, its sculptures, its palaces and its obelisks, is now restored through its aid, and the lover of art or antiquity can gaze upon it as it was in palmy days, without leaving his own country.

Without the art of engraving, which for usefulness, stands side by side with printing, how dry and barren would be many of our books! No pictured "Harper's" would lie on our tables, no Sunday-school papers, with their attractive representation of boys and girls and lambs and birds for our children, nor for our older ones; no school-books teaching more plainly of mountains, rivers, beasts, and the varied vegetable productions of the globe than any mere words, no matter how graphic, could do.

Raphael's immortal cartoons could not have instructed and delighted mankind as they now do; their value would have been confined to the few who could visit the palace where they are preserved; no Ary Scheffer's could hang in our houses; no Goupil could foster and encourage a correct taste in art, by cheap copies of famous masters, and the development of the world would be centuries back without the aid of this invention of Isabella Cunio, which brings to our doors the beauty, the wisdom, and the knowledge of ages.

SMALL ARTICLES.

A little work entitled "How to Obtain Letters Patent," makes the statement that although great inventions bring fame, yet small ones are the most profitable; and in proof says, the invention of a "new ink" gained its fortunate proprietor sixty thousand dollars, while a chimney spring brought in fifty thousand dollars a year.

In small inventions woman has been fully represented, although but seldom to her profit. She has suggested, and her suggestion has been acted upon, but both the money and the fame arising from it have gone to another.

Conversing once with a stove manufacturer of Troy, he asserted that the greatest improvement he ever met in stoves, was the invention of a woman. "Did she patent it?" I asked. "No," he replied, "she didn't; but a certain man did, and made a sight of money from it, too."

But woman is waking to her own interest. In a Troy paper of recent date mention was made of an auxiliary Stove Chamber recently invented and patented by a Mrs. Hawks, and manufactured at the Empire Foundry of that city, which was so great a success that since its introduction last Spring, two thousand have been sold, a greater number than was ever before sold of a new stove in the same length of time. Another extensive foundry of Troy owes its immense pecuniary success to the genius of a woman applied to a small article.

It has sometimes been tauntingly said to woman that she had no mechanical genius, as, if she had it, the sewing-machine would have been her invention, instead of man's; yet the invention of a peculiar "horse-shoe," to which this foundry owes its success, was a much more unlikely one, in the eye of the world, to have been made by a woman, than was the sewing-machine to have been made by a man.

As Minerva taught man to manage the horse, it seems but a fitting sequence that one of her sex should place upon his foot an improved shoe. Had it not been for the envious strikes by the company's blacksmiths, this cheaper and improved shoe would now be used by all the street railroads in New York city. Selfish greed and dishonest restrictions have always wrought their work most effectually upon the weak and legally unprotected portion of the community.

'Tis to the genius of a French woman that the world owes the invention of the manikin. Through the instrumentality of this image of nature, the science of physiology has been widely spread among the people, and the laws of health made familiar to every household. When mankind fully learn the mystery of their bodies, and observe the connection between diseases of the soul and body, we can begin to hope for a purer morality. "Know thyself," applies not only to the soul, but to the body likewise. We are commanded to keep the temple of our bodies pure for the indwelling of our God, and no equal aid to a knowledge fitting us to preserve their purity, can be found outside of the Manikin. Madam DaCoudray belonged to a family pre-eminent, through successive generations, for its knowledge of medicine, and a relative of hers, Madam Louise Borgeois, was, during the seventeenth century, a successful Parisian midwife; and not only wrote a work which totally changed the method of treating certain diseases from which her own sex are the sole sufferers, but she also invented delicate obstetrical instruments. Such was her standing that to one of her medical works the great LaPlace attached an essay of his own. Many other surgical instruments invented by woman might be mentioned, but as Mrs. Dall, in a work of her own, has brought them before the public, I do not deem it necessary.

Not only have delicate surgical instruments owed their invention to women, but also delicate mathematical instruments;

and that, from the time of Hypatia down to Caroline Herschel and Mary Somerville.

The close reader of ancient history will find that many works evincing profound mathematical knowledge, have also owed their existence to the inventive genius and directions of women; and at the present day, the French government has employed a woman in an extended drainage, upon a newly invented and successful system of her own. The deep sea telescope owes its origin to the genius of a Massachusetts woman. The daughter of this scientific lady has very recently made improvements in this instrument so that now, the New York Tribune says, the very bottom of a ship is by it brought to view, and by means of this wonderful invention the largest vessels can be examined without the expense of elevating them into dry-docks. Wrecks can also be inspected, obstructions in navigation investigated, search for lost treasures, and in war time, for torpedoes, successfully carried on, and immense sums annually saved through its means.

We deem the telescope which examines the heavens a wonderful invention, though we cannot definitely attribute the honor of its discovery to any particular man or woman, or even to a particular age; but how much greater scientific genius must these women possess who have invented an instrument for bringing to view the depths of the ocean, and making its wonders as familiar to us as those of the dry land.

Artificial Pearls, the making of which, though an ancient Egyptian art, owes its modern re-invention to woman. Pliny considered this art of imitating precious stones the most lucrative deceit ever devised by the ingenuity of man.

But it would be futile for me to attempt to particularize all the inventions with which woman is credited, or to prove her claim to the thousands which her own false modesty, or the over-weening assurance of man, has denied her.

I can but refer to distaffs, spindles, needles, flat-irons, fluting-irons, spinning machines, varieties of paper, cements and artificial marble, cosmetics, colors, and embroideries, for the latter of which the Sidonian women were, even in the Homeric age, celebrated. I can but point to the domain of science, of art, of household economy, to the engines of peace and of war alike, for in each and all of them do we find the inventive genius of woman has wrought. As has been well said, the patentee is not always the inventor; neither is the manufacturer always the originator. As was the case with the "cotton-gin," woman's inventive ideas are sometimes allowed to take form in the hands of a practical mechanic; and like the invention of the stove, above referred to, men frequently claim both the honor and the money arising from woman's inventions.

If women have ideas, they are taught to repress them as improper for their sex, and the genius which does them and their sex honor, is deemed a matter to be hidden from light. Instances have come to my knowledge in which families have been raised to affluence through some invention of a woman, which she was ashamed to acknowledge as hers. Even the scientific ladies who invented the deep sea telescope, made an especial request that their names should not be mentioned as its inventor.

If in this day of respect for woman, and of the printing press to disseminate knowledge, we find multitudes of such instances, we can well imagine of how much inventive reputation she has been robbed in ages past.

The arch, which in itself is the perfection of building, can be assigned no date back of the third pyramid, which was in part, or wholly, the work of Nitocris. This pyramid, though smaller than those of Cheops and Chephrenes, was considered by Pliny to be much more beautiful and wonderful than those. It was coated with granite, the stones of immense size, and bore an inscription to the effect that its lesser size should not cause it to be despised, but an examination of its greater scientific construction should be made, when it would be found worthy of superior commendation. Its chief olden fame is supposed to have rested on the arch here first used by Queen Nitrocis.

This small pyramid is 354 feet square and over 200 feet in height. Modern visitors sustain the truthfulness of its inscription, as they state it to be the best constructed of the three great pyramids, and the style of work more costly than that of any other Egyptian pyramid.

The name of Nitocris occurs twice in the Turin papyrus, as the last sovereign of Manetho's VIth dynasty. The credit of building this pyramid was given, by both Eusebius and Africanus, to Nitocris. She was described by Manetho as flaxen-haired and rosy-cheeked.

Babylon, the city which, both in its material and spiritual signification, stands as an emblem of all that is great of earth, was built by Semiramis, and the bricks with which it was built were by her orders first inscribed and then beautifully colored. The oldest libraries in existence are those of clay, of which Babylon is the first historically mentioned one.

The military skill of Semiramis, shown from her devising engines, by which the long protracted seige of Bactria was forced to a close, was not the first evidence she gave of inventive genius, for when sent for by her husband to meet him at that place, she invented a garment for the journey which came to be known as "Semiramis's gown," and was adopted by both the Median and Persian kings as an insignia of their royalty, and became one of the most prized gifts and evidences of royal favor.

When Haman was called upon by Ahashuerus to decide what should be done to the man whom the king delighted to honor, he, supposing himself to be the favored one, chose to have him arrayed in the royal apparel that the king was wont to wear, no other honor the king could bestow equaling in significance this one, of being permitted to don "Semiramis's gown." Even to this day in the East, the caftan, as this gown is now called, is the symbol of honor.

In the traditions of the East the fame of Semiramis exceeds that of any preceeding or succeeding monarch. The strength given to the underground passage, or tunnel, which she caused to be constructed under the Euphrates, to connect her palaces on opposite sides of the river, was ascribed to her genius, and all modern tunnelling can trace its origin back to Semiramis.

In all ages have been found men who have striven to defraud woman and to give themselves the glory properly her due. I wish here to present an instance of this injustice to woman, this absolute robbery of her fame so common to man, and apparently deemed so justifiable by the whole sex; and in so doing, I shall bring before my readers a woman, dead for centuries, whose very name is known to comparatively few, but whose grand works of art did much to make her country famed as the great centre of that civilization, whose light has now spread over the world.

This woman was Amun-nou-het, a queen of Egypt, whom Wilkinson says was "associated on the thrones with both Thotmes II. and Thotmes III., and appears to have enjoyed a greater consideration than either of them." Wilkinson tells us that not only were monuments raised in her name, but she is even represented as alone presenting offerings to the gods. If no other record than this last was given of her, it could reveal to us her exceeding high position, as the hierarchical office in Egypt was, in some respects, superior to the kingly.

She reigned about twenty-two years, and during her life, Thotmes III., called one of the greatest of Egyptian kings, held an inferior position, and never obtained the chief authority until after her death. She is supposed to have been his sister, and although his name was admitted with hers on some of her latest monuments, it was secondary to hers.

The different Egyptian dynasties, exhibited in their monuments, different architectural types. While that to which Nitocris belonged can be called the pyramidal dynasty, the Twelfth, to which Amun-nou-het belonged, showed its genius in the erection of Obelisks.

The great monolith obelisks at Karnak were the most remarkable of her works, and were the largest obelisks ever erected in Thebes. One of them is still standing; its height is ninety-two feet, its weight two hundred and ninety-seven tons, and it was brought a distance of one hundred and thirty-eight miles.

On the opposite side of the hill she built a granite gateway to the rock-temple of Thotmes I., and otherwise embellished it; numerous other monuments were erected by her over the country. Hers was especially the monumental age of Egypt, for during her reign and that of Thotmes III., after her, a greater number of monuments were erected than in any other preceding or succeeding reign. Thotmes III. desired the sole glory of these works, and no sooner was Amun-nou-het dead, than he began his efforts to obliterate her memory from existence, by ordering her name effaced from all monuments, and his own placed in its stead. The persons employed in this work were not particular to change every necessary word, and monuments are seen to this day, inscribed, "King Thotmes; 'she' made this work for 'her' father Amun."

Truth and justice, after the lapse of nearly four thousand years, have brought to light this base deceit, and exhibited him to the world as an envious, falsifying king, who strove to build an architectural reputation upon the destruction of a woman's fame. His bitter envy and hatred towards her, and possibly his fear that some successor of his would replace her name on her monuments, caused him to make every effort to banish her memory from existence; and he so far succeeded, that her name was omitted from the list of kings, even upon those monuments of a later date, by Rameses II.

Although Wilkinson now thinks the arguments of the Duke of Northumberland, for placing the Exodus, after the reign of Rameses II., have greater weight than his own of its occurring during the reign of Thotmes III., we can but think the treatment of the Israelites was in keeping with the falsifying, deceptive character of Thotmes III. Even if time and research show him not to have been identical with the Israelitish Pharaoh, he is still an abiding monument of envious meanness, and will serve as a type of man's general course towards woman, legally and socially, during past ages, in which he has first denied her the right "to do" and when she has done, "denied her the credit of doing."

There is a wide field of invention yet open to woman. Few great inventions spring into the world so fully perfected as did the Cotton Gin; but a little improvement here, and another there, constitute the mass of patents. Many more of these are the result of accident than of careful, pains-taking thought. The automatic action of the valves of the condensing steam-engine originated with a lazy boy, set to open and close them by hand, and who, "to gain time for play, instituted an apparatus of catches and strings."

But an article entitled "How to Invent," in the little book above referred to, says: "The readiest way to invent is to keep thinking. * * Inventors should cultivate habits of observation. Examine things about and see how they are made and how improved."

Chemistry is referred to as offering a wide field for new discoveries, as less than five per cent. of all patents issued are for chemical inventions, while the elements with which the chemist can work are twelve times the number that the mechanic can employ.

The names of Locusta and Tofania, infamous though they are, prove woman's inventive genius in chemistry, as thoroughly as preceding names have shown her ability in mechanism.

MYTHOLOGY.

"Lost Arts" was to many a revelation of the fact that the earliest steps in inventions are buried in the mists of past ages, or are found in their rudimentary states among old nations, and claimed as their own by different countries. Modern inventions, even of the most scientific and useful character, seem but the blossoms of human wisdom, of which past ages were the seed, the tender plant and the bud. Each year is but the climax of past centuries, and to perfect it we have had the experience of myriads of millions of human beings. Far away back in the past, so far, indeed, that the record of men's doings has not been preserved by cuneiform characters, or even the later hieroglyphics, we still have an insight into the history of the world, through mythology and tradition. The increasing light thrown on to mythical history by the discoveries of Eastern explorers and savans, seems to prove that the gods and goddesses of the mythological and traditionary period were human beings, who, during the pre-historic age of the world, discovered or invented what was of use to mankind, and for such useful inventions were, after death, deified.

On our own continent is preserved the half-mythical, half-traditional Mama Oello Huaco, the mother of the Incas, and the founder of the manufactures of Peru. She it was who was worshipped as the inventor of spinning and weaving—arts into which she so successfully initiated her countrywomen, that when America was discovered, the Peruvians had carried them to the highest perfection. Prescott, in his history of Peru, says of them: "The delicate manufactures of the Peruvian wool were of so beautiful a texture that the Spanish sovereigns, with all the luxeries of Europe at their command, did not disdain to use them.

In mythology we ever find women credited with the primal and most useful inventions of the world. As in the new, so also in the old world, were the rise of manufactures ascribed to woman's inventive power. To Minerva, the Pallas Athæne of the Greeks, was not only attributed the invention of those "feminine implements, the distaff and the needle," but the first building of ships was accredited to her, as well as the still more "masculine" art of horse-breaking.

In the golden age of the world, laborers and inventors were looked upon as entitled to the highest honor, and held the first place in the estimation of mankind. Use was the road to power, and the greatest benefactor to mankind, though at the same time the greatest servant of the race, was, through a true induction, placed in the highest rank by the early peoples, and obeyed as king or worshipped as god.

Athens, a name synonomous with all that is beautiful in art, wide in culture, or profound in wisdom—a city at once the apex of art and intellect, whose memory is still fresh in the minds of men—this city of science and philosophy was under the special protection and guidance of the female inventor goddess, Minerva. The culmination of Greek genius was at Athens, and Greek fame among moderns rests upon our knowledge of what Athens once was. Known as Athæne, Minerva was one of the most ancient religious conceptions of the Greeks, and was at once the symbol of thought, the goddess of wisdom, the divine protectress of arts, the patron of heroes, the being to whom Greece was indebted for her success in the Trojan war, and who, besides being regarded as the inventor of every kind of work usually done by women, was equally deemed the originator of agriculture and mechanics—the inventor of all tools of handicraft, of musical instruments, of the arts, and the inspiration of philosophy, oratory and poesy. The helmet, the buckler, the lance, and the ægis of the warrior, were worn by her, and no less sacred to her were the olive branch of peace, the serpent of immortality, and the owl of wisdom. Her mother, Metis, even exceeded gods and men in knowledge.

Minerva, or wisdom, worshipped as a goddess, represented as a feminine quality that base of all invention—intuition as to needs. In fact, from needs, and from the intuitive quality which supply them, arose the adage, "Necessity is the mother of invention." Presiding, as did Minerva, over sense, over taste, over reason; inventing alike war-chariots and musical instruments; invoked alike by warriors, by tillers of the soil, by artists, by orators, by philosophers, by architects and by manufacturers, she embodied in one person all purely feminine qualities, and herself represented to the Greeks all of power which the past ascribed to woman, and which the future will acknowledge as belonging to feminine intuition.

Greek prescience claimed for Minerva the olive branch of peace, which the world's great inventions of the present century will ultimately bring—the serpent of immortality, due to continuous prosperity, and the wisdom to bring from human understanding these great results. As the soul of life, woman brings all activity, all ultimates to the body, which spiritually man represents.

The oldest religious rites of which mythology, or hieroglyphics teach us, had some goddess as their instigator. The Eleusinian mysteries—the most profound religious rites of the Greeks—were instituted in honor of the goddess Ceres, who not only gave the Greeks corn, but who also instituted the laws by which they were governed. These rites contained the great elements of the Greek religion, though their peculiar, mystic significance has escaped modern research. As Ceres stood among the Greeks as the corn-giver, so did she no less represent the genius of law, and under the name of Thesmophora, was revered as the first who made laws to govern men.

To the goddess Mnemosyne was ascribed the invention of logic—"hard logic"—so proudly claimed by the men of to-day as pertaining to their sex alone. All gifts belonging to the memory were from her. The ancients, by their worship of this goddess, perpetuated the undying proverb which ascribes to women the power of "will." Woman's will, founded on intuition, has the property ascribed to figures—it "cannot lie." Intuition, higher than reason, proceeding from a purer source, is an innate knowledge of first principles, and has been termed the only true logic. First principles precede reasoning.

Letters, ascribed to the Muses, look back to a feminine source for invention.

Divination, that art which ruled the course of heroes, and held the fate of empires in past ages; divination, with its sybils, its priestesses, its oracles, and its books, has come down to us in history as originating with woman. To woman mythology ascribes the first building of houses, before which time men lived in caves and trees. Even the toils and the nets of the hunter were a mythology accredited to woman.

Diodorus, speaking about the worship thus paid to gods and goddesses, says the inventor of things useful and profitable to man's well-being, were, as a reward of their deserts, thus honored by all men with everlasting remembrance.

This was not only true of Greece, but also of Egypt, from whence arose Grecian civilization. During the time of Isis and Osiris, ingenious artists and projectors were held in peculiar esteem. The original title to kinghood in Egypt lay in use, and the crown, at first, went not by descent, but by merit. The most highly useful person was entrusted with government over the rest. So truly did that become a part of Egyptian polity that even the Pharaohs were bound by its rules as to food and the employment of their time—rules which even the most powerful ventured not to disregard.

Isis, whose worship was so universal over Egypt, and whose name falls so familiarly upon our own ears, was believed to have given the world many inventions. It was she who taught the Egyptians to make bread. Previous to her, these grains grew as weeds, neglected and unknown, while the inhabitants lived like cattle, upon roots and herbs of the field. As soon as she taught them the delicate manipulations needful for making civilized food from those grains, they possessed the germ of all domestic inventions. It was Isis who taught the Egyptians the art of embalming, by which art the Israelites preserved the body of Joseph, taking it with them, according to their oath, when they fled from Egypt, some three or four hundred years after his death. The science of medicine dates back to Isis, who not only healed the blind and the lame, but who restored to life even the dead. Down to the time of Galen, many medicines bore her name. So renowned were the medicines of Egypt, that even the prophet Jeremiah and the poet Homer referred to them. The potion Nepenthes, which Helen gave Telemachus, to cause him to forget all his sorrows, came from Egypt, brought from thence by the wife of one of the heroes of the Trojan war; and even down to the time of Diodorus, the Egyptian women still used that medicine with good success. In ancient times, he says, the medicine for the cure of sorrow and anger was found alone at Thebes, a city built by Osiris, in memory of his mother.

Corroborative testimony of the truth of history comes to us at times from the most unlikely sources; as instance: At the present day the Japanese have a medicine, in powder form, termed "dosia," which not only possesses great curative qualities, but which, if taken in perfect health, cheers the spirits and refreshes the body; and is also said to restore to a dead body as great a degree of flexibility as it had while living. This medicine has very much the character of one of the ancient Egyptian medicines, whose invention was ascribed to Isis.

The domestic customs of the ancient Egyptians, that wisest nation of antiquity, arose from the regard borne to the memory of Isis from the inestimable benefits with which her genius and inventive powers had blessed that nation.

Diodorus says the Egyptians not only honored a queen, and allowed her more power and authority than they did a king, but in their contracts of marriage, authority was given to the wife over the husband, the husband at that time promising to be obedient to the wife in all things. This custom arose not only from their gratitude to Isis, and their views in regard to purity, but in recognition of the universal benefit which woman's inventive genius had been to their country. This custom of woman's rule worked the happiest results. The terrible vices of modern society, which tear asunder the marriage relation, were very rare in Egypt. The regard of married couples for each other was very ardent, and adultery was deemed a sin henious enough to call down the vengeance of the gods for the destruction of nations. In this wise Egyptian land, where woman held a reverenced and self-protecting position, outrages against her were deemed a combination of the three most horrid crimes, and were punished in a manner more terrible than death.

So universal became the worship of this inventive goddess, Isis, that it at last extended around the habitable globe. Not only the Minerva of Athens, and the Ceres of Elensia are deemed the same as Isis, but also the Venus of Cyprus, the Cybele of Phrygia, the Proserpine of Sicily, the Diana of Crete, and the Bellona of Italy.

Isis, possessed of ten thousand names, is by some scholars looked upon as identical with the Eve of the Bible.

Clemens Alexandrinus says, in things which are occult, the enigmas of the Egyptians are similar to the Hebrews. We know woman, in the Hebrew tongue, is Issa; that Isis was looked upon as the universal mother; that Eve was the mother of all living.

Among the innumerable inscriptions to Isis, the following, for sublime simplicity, stands foremost among them all:—

"I am all that has been, all that shall be, and none among mortals has hitherto taken off my veil." *

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* Although Plutarch regards Isis to have been here meant, later scholars give the same inscription to Neith. Inductive testimony, and a comparison of qualities seems to point to these two as one, and I doubt not a fuller understanding of hieroglyphics will so prove them to be.

Diodorus says the ancients held two opinions of the gods. They deemed the most ancient to be of a superior order and spiritual nature. But the second order of gods, who "were the most beloved and the most worshipped," were originally human beings, who, from the benefits that had accrued to mankind through their instrumentality, were placed upon the highest pinnacle of honor and glory. In this class Isis held front rank. The most useful were the most honored. With the wise Greeks and the wiser Egyptians, we alike see woman worshipped as the first inventor. Archæology is truly said to have become the backbone of ancient history, and through its discoveries the world is having its most sacredly "consecrated falsehoods" overthrown. To it we shall look for the full elucidation of ancient mythology, with a firm belief that through it woman's position as the earliest inventor will be unchangingly established.